

Analysis of the Left Atrial Appendage by Three-Dimensional Transesophageal Echocardiography

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journal or publication title	The American journal of cardiology
volume	106
number	6
page range	885-892
year	2010-09
権利	(C) 2010 Elsevier Inc.
URL	http://hdl.handle.net/2241/106591

doi: 10.1016/j.amjcard.2010.05.014

Table 1. Clinical Characteristics and Doppler Echocardiographic Measurements

No of patients	107
Sex (Male/Female)	81/26
Age (years)	61 \pm 11 (27-82)
Heart rate (bpm)	68 \pm 14 (48-94)
Comorbidities	
Paroxysmal atrial fibrillation	44 (41%)
Chronic atrial fibrillation	37 (35%)
Valvular heart disease	14 (13%)
Cardiomyopathy	10 (9%)
Cardiac tumor	2 (2%)
Rhythm at examination	
Normal sinus rhythm	55 (51%)
Atrial fibrillation	52 (49%)
Measurements of 2D-TTE	
LVDd (mm)	50 \pm 6 (31-70)
LVDs (mm)	33 \pm 7 (21-63)
LVEDV (ml)	108 \pm 30 (38-202)
LVESV (ml)	41 \pm 21 (16-161)
LVEF (%)	62 \pm 12 (20-82)
LA volume (ml)	74 \pm 44 (20-273)
LAA flow (cm/s)	41 \pm 19 (5-89)

Data are presented as the mean \pm SD (range) or n (%).

2D-TTE = two-dimensional transthoracic echocardiography; LVDd = left ventricular end-diastolic diameter; LVDs = left ventricular end-systolic diameter; LVEDV = left ventricular end-diastolic volume; LVESV = left ventricular end-systolic volume; LVEF = left ventricular ejection fraction; LA = left atrial; LAA flow = left atrial appendage emptying flow velocity.

Table 2. Clinical Characteristics and Doppler Echocardiographic Measurements of Excluded Patients from Analysis

Case no	Sex (Male / Female)	Age (years)	HR (bpm)	LVEF (%)	LA volume (ml)	LAA flow (cm/s)
Included AF cases (n = 46)	39 / 7	62 ± 10	65 ± 10	57 ± 13	92.9 ± 51.7	37.6 ± 19.7
Excluded cases (n = 6)	4 / 2	52 ± 17	77 ± 17*	69 ± 7*	83.9 ± 41.1	45.7 ± 6.6
1	Female	64	90	73	101.3	46.8
2	Male	32	61	67	67.5	51.6
3	Male	73	90	68	45.2	38.3
4	Male	43	58	62	56.8	53.7
5	Female	74	94	76	163.3	38.2
6	Male	41	92	79	99.7	41.1

Data of non excluded cases and excluded cases are presented as the mean ± SD. *P<0.01 vs. Non excluded cases. HR = heart rate; AF = atrial fibrillation; Other abbreviations as in Table 1.

Table 3. Comparisons of Left Atrial Volume and Left Atrial Appendage Flow and Morphology Evaluation between Patients with Normal Sinus Rhythm and Atrial Fibrillation

	All (n = 101)	NSR (n = 55)	AF (n = 46)	P value [*]
LA volume, ml	73.1 ± 43.6 (20.0-273.4)	56.4 ± 26.1 (21.0-180.3)	92.9 ± 51.7 (20.0-273.4)	<0.0001
LAA flow, cm/s	42.1 ± 19.4 (5.0-100.3)	44.7 ± 18.8 (14.0-89.3)	36.9 ± 17.5 (5.0-77.0)	0.04
LAA orifice long diameter, mm	29.7 ± 7.4 (50.2-15.3)	28.2 ± 7.2 (16.1-50.2)	31.6 ± 7.4 (17.4-52.9)	0.03
LAA orifice short diameter, mm	20.6 ± 5.9 (10.0-36.8)	19.2 ± 5.7 (10.0-35.3)	22.3 ± 5.8 (11.1-36.8)	0.01
LAA orifice area, cm ²	5.1 ± 2.5 (1.2-14.5)	4.4 ± 2.4 (1.2-14.5)	5.9 ± 2.5 (1.4-12.7)	0.01
LAA depth, mm	38.5 ± 8.2 (23.3-62.0)	37.3 ± 8.3 (23.3-57.3)	40.5 ± 8.0 (25.0-62.0)	0.05
LAA angle, degree	124.0 ± 13.2 (99.0-178.2)	124.0 ± 12.0 (100.2-160.6)	124.0 ± 14.7 (99.0-178.4)	NS
LAA volume, ml	9.2 ± 5.6 (2.8-30.5)	8.1 ± 5.1 (3.3-27.4)	10.5 ± 5.9 (3.8-30.5)	0.03

Data are presented as the mean ± SD (range). NSR = normal sinus rhythm; Other abbreviations as in Tables 1, 2. * P values: NSR vs. AF.